

FEATURES

- Efficiency up to 79%
- DIP Package with Industry Standard Pinout
- High Isolation Voltage 3000VDC
- Temperature Performance -40°C to +75°C
- > 2MHours MTBF
- Internal SMD platform
- Lead free, RoHs Compliant
- 12 Standard Models
- 3 Years Product Warranty



Security



Lab



Medical



Metro



Data Center



Telecom



Industrial



Network

The DA01S series are miniature, DIP Package, isolated 1W DC/DC converters with 3,000VDC isolation. It allows a wide operating temperature range of -40°C to +75°C. These isolated DC/DC converters are the latest offering from a world leader in power systems technology and manufacturing — Delta Electronics, Inc. With creative design technology and optimization of component placement, these converters possess outstanding electrical and thermal performance, as well as extremely high reliability under highly stressful operating conditions.

Model List

Model Number	Input Voltage (Range)	Output Voltage	Output Current		Input Current		Load Regulation	Max. apacitive Load	Efficiency (typ.)
			Max.	Min.	@Max. Load	@No Load			@Max. Load
	VDC	VDC	mA	mA	mA(typ.)	mA(typ.)	% (max.)	uF	%
DA01S0505A	5 (4.5 ~ 5.5)	5	200	4	290	30	11	33	69
DA01S0509A		9	110	2	260		8		76
DA01S0512A		12	84	1.5	262		7		77
DA01S0515A		15	67	1	257		6		78
DA01S1205A	12 (10.8 ~ 13.2)	5	200	4	117	13	9	33	71
DA01S1209A		9	110	2	107		5		77
DA01S1212A		12	84	1.5	106		5		79
DA01S1215A		15	67	1	106		4		79
DA01S2405A	24 (21.6 ~ 26.4)	5	200	4	60	10	8	33	70
DA01S2409A		9	110	2	54		5		76
DA01S2412A		12	84	1.5	53		4		79
DA01S2415A		15	67	1	53		4		79

Input Characteristics

Parameter	Model	Min.	Typ.	Max.	Unit
Input Voltage Range	5V Input Models	4.5	5	5.5	VDC
	12V Input Models	10.8	12	13.2	
	24V Input Models	21.6	24	26.4	
Input Surge Voltage (1 sec. max.)	5V Input Models	-0.7	---	7	
	12V Input Models	-0.7	---	15	
	24V Input Models	-0.7	---	28	
Reverse Polarity Input Current	All Models	---	---	0.3	A
Input Filter		Internal Capacitor			
Internal Power Dissipation		---	---	450	mW

Output Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		---	±1.0	±3.0	%
Line Regulation	For Vin Change of 1%	---	±1.2	±1.5	%
Load Regulation	Io=20% to 100%	+11% max			
Ripple & Noise (20MHz)		---	100	150	mV _{P-P}
Ripple & Noise (20MHz)	Over Line, Load & Temp.	---	---	200	mV _{P-P}
Ripple & Noise (20MHz)		---	---	15	mV rms
Temperature Coefficient		---	±0.01	±0.02	%/°C
Short Circuit Protection		0.5 Second Max.			

General Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage (rated)	60 Seconds	3000	---	---	VDC
I/O Isolation Resistance	500 VDC	10	---	---	GΩ
I/O Isolation Capacitance	100KHz, 1V	---	60	100	pF
Switching Frequency		50	90	110	KHz
MTBF (calculated)	MIL-HDBK-217F@25°C, Ground Benign	2,000,000	---	---	Hours

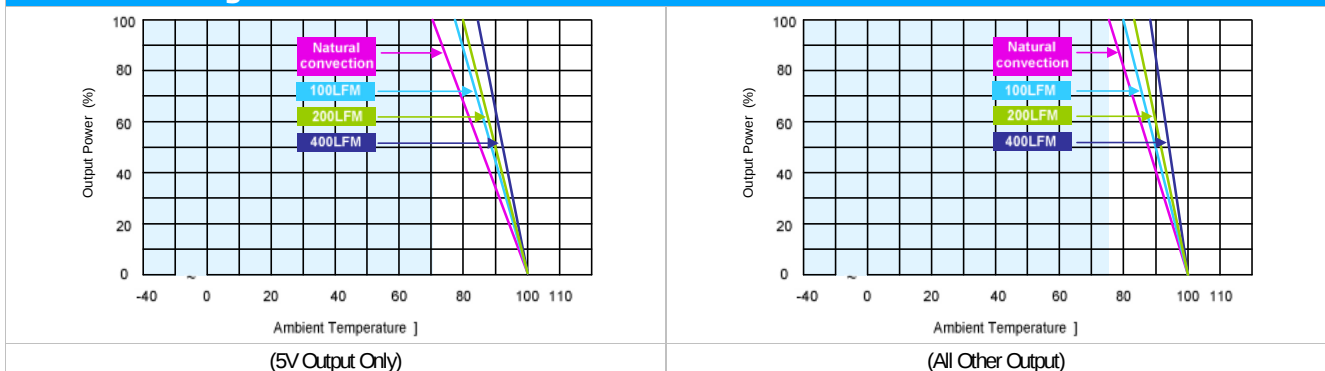
Recommended Input Fuse

5V Input Models	12V Input Models	24V Input Models
500mA Slow-Blow Type	200mA Slow-Blow Type	100mA Slow-Blow Type

Environmental Characteristics

Parameter	Conditions	Min.	Max.	Unit
Operating Temperature Range (with Derating)	Ambient	-40	+85	°C
Case Temperature		---	+90	°C
Storage Temperature Range		-50	+125	°C
Humidity (non condensing)		---	95	% rel. H
Cooling	Free-Air convection			
Lead Temperature (1.5mm from case for 10Sec.)		---	260	°C

Power Derating Curve



Notes

- Specifications typical at Ta=+25°C, resistive load, nominal input voltage and rated output current unless otherwise noted.
- Ripple & Noise measurement bandwidth is 0-20MHz.
- These power converters require a minimum output loading to maintain specified regulation, operation under no-load conditions will not damage these modules; however they may not meet all specifications listed.
- All DC/DC converters should be externally fused at the front end for protection.
- Specifications subject to change without notice.

Package Specifications

Mechanical Dimensions

The drawing shows a package with a top view and a bottom view. The top view shows a rectangular package with a width of 12.7 mm [0.50] and a height of 10.2 mm [0.40]. The bottom view shows the same package with a width of 12.7 mm [0.50] and a height of 10.2 mm [0.40]. The pin connections are labeled as follows:

- Pin 1: -Vin
- Pin 4: +Vin
- Pin 5: +Vout
- Pin 7: -Vout

Additional dimensions shown in the top view include:

- Pin 1 to Pin 4 distance: 7.62 mm [0.30]
- Pin 4 to Pin 5 distance: 2.6 mm [0.10]
- Pin 5 to Pin 7 distance: 5.08 mm [0.20]
- Pin 7 to Pin 1 distance: 12.7 mm [0.50]
- Pin 1 to Pin 4 distance: 7.62 mm [0.30]
- Pin 4 to Pin 5 distance: 2.6 mm [0.10]
- Pin 5 to Pin 7 distance: 5.08 mm [0.20]
- Pin 7 to Pin 1 distance: 12.7 mm [0.50]
- Pin 1 to Pin 4 distance: 7.62 mm [0.30]
- Pin 4 to Pin 5 distance: 2.6 mm [0.10]
- Pin 5 to Pin 7 distance: 5.08 mm [0.20]
- Pin 7 to Pin 1 distance: 12.7 mm [0.50]

Pin Connections

Pin	Function
1	-Vin
4	+Vin
5	+Vout
7	-Vout

L=7.0 [0.28] for 5V & 12V Input Models

L=8.0 [0.31] for 24V Input Models

- ▶ All dimensions in mm (inches)
- ▶ Tolerance: X.X±0.25 (X.XX±0.01)
X.XX±0.13 (X.XXX±0.005)
- ▶ Pin diameter ⇔ 0.5±0.05 (0.02±0.002)

Physical Characteristics

Case Size (5V&12V Input)	: 12.7x7.0x10.2mm (0.50x0.28x0.40 Inches)
Case Size(24V Input)	: 12.7x8.0x10.2mm (0.50x0.31x0.40 Inches)
Case Material	: Non-Conductive Black Plastic (flammability to UL 94V-0 rated)
Weight(5V&12V Input)	: 1.3g
Weight(24V Input)	: 1.7g



Part Numbering System

D	A	01	S	05	05	A
Form factor	Family series	Watt	Number of Outputs	Input Voltage	Output Voltage	Option Code
D-DIP	A-Z	01:1W	S - Single	03:3.3V	03:3.3V	A - Std. Functions
P-SIP		02:2W	D- Dual	05: 5V	05: 5V	
S-SMD		03:3W		12:12V	12:12V	
		04:4W		24: 24V	15: 15V	
		06:6W		48:48V	24: 24V	

WARRANTY

Delta offers a three(3) years limited warranty. Complete warranty information is listed on our web site or is available upon request from Delta.

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